

XXII. *The Scolyto-platypini, a new subfamily of Scolytidæ.* By WALTER F. H. BLANDFORD, M.A., F.Z.S.

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PLATE XIV.

ONE of the most interesting questions connected with the *Rhynchophora* is that of the determination of the systematic position, or rather of the systematic importance and affinities of the *Platypini*. This isolated and compact group of insects presents abnormalities in structure which separate it widely from the remainder of the *Scolytidæ* and from other *Rhynchophora*. Indeed, it may be said that the structural differences between a Platypid and other Scolytids, in the formation of the trophi, legs, prothorax and metasternum, and indeed all the chitinous parts, are far greater than those which separate the genera at the other end of the Scolytid series, for example, *Hylastes*, from *Curculionidæ*, such as the Cossonids. This difference has been generally recognised by the division of the family into two groups or subfamilies, to contain respectively the *Platypini* and the other Scolytids; and is perhaps more as a matter of convenience, than for any other reason, that the *Platypini* have been retained in the same family at all. They have indeed been rejected by Eichhoff, who, after close study of the *Tomicini*, the group usually supposed to have most affinity with the *Platypini*, has expressed the opinion that they form an absolutely distinct family, and are not to be brought, "gleichsam unter einen Hut," with the other *Scolytidæ*. Latterly, Bedel, in his *Coléoptères du Bassin de la Seine: Rhynchophora*, has separated the *Platypidæ* as a distinct family in the table of families at the beginning of the work (p. 3), but has reunited them with the other *Scolytidæ* (p. 385) when dealing with the family in detail. This decision is wise, as systematic works on the fauna of a very restricted

region are hardly the place for introducing classificatory novelties, which can only be appreciated by a study of forms from all parts of the world, without respect to country.

At present our knowledge of extra-European Scolytids, other than *Tomicini* and *Platypini*, is of the most fragmentary kind. Those of North America are known, but present no anomalous forms. Central and South America possess some curious groups, but, with the exception of the *Camptoceri*, which are closely allied to the true *Scolyti*, they are at present undescribed, or at most briefly diagnosed in Chapuis' *Synopsis des Scolytides*, a mere preliminary sketch of a work never carried out, and quite useless for classificatory purposes. Nothing much is known of these groups in Africa nor in Australasia, which, nevertheless, contains some interesting forms; and little can be said of the Asiatic genera, with the exception of the *Dactylipalpi*, which are in all respects allied to the South American *Phlæotrupi* and *Phlæobori*, and not remote from the *Hylesinini*. A very moderate study of undescribed forms has convinced me that the *Scolytidæ*, other than the two above-mentioned groups, are more variable and extensive than has been supposed, and that a satisfactory knowledge and classification of this section of the family will be a work of considerable time.

With the small knowledge that we possess of part of the family, it is not surprising that the *Platypini* have remained isolated, and that other forms bearing an obvious relationship to them have been somewhat wanting. In 1858, Motschulsky\* described a rather mysterious genus *Genyocerus* from India, to which he added a subsequent species from Japan,† with a strong resemblance to a Platypid. This genus has not been rediscovered, and has been properly rejected by Chapuis from the *Platypidæ* on account of the antennal structure.

Among the remarkable and suspicious features of the Indian *G. albipennis*, Motsch., are the mandibles, which are very long, falcate and recurved. It is not unlikely that Motschulsky has either mistaken for the true mandibles appendages such as are found on the mandibles of the males (Chap.) of *Diapus*, or even a

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\* Etudes Ent., vii. p. 68, figs. 18-18<sup>iv</sup>.

† Id., ix. p. 19.

matted condition of the long curled hairs which sometimes occur on the front of the head in Scolytids. I have seen them in a condition curiously like the mandibles figured by Motschulsky, whom I believe, from examination of other work of his, to have been capable of such an error. In 1885, Dugès described an aberrant genus, *Chapuisia*,\* from Mexico, which he believes to have affinities with the *Platypini*. At present I content myself with saying that its affinities are probably more remote than Dugès supposed, and that, so far from being aberrant, it may be related to *Coptonotus*, Chap.

In the very fine collection of *Scolytidæ* made in Japan by Mr. Geo. Lewis, which he has entrusted to me for examination, are three or four species of a remarkable kind, forming a closely-allied and compact group, which cannot be associated with any of the existing divisions of the family. In certain points they show a remarkable resemblance to *Platypini*; and though the dissimilarity of other structural features may indicate that the resemblance is not so great as it appears to be, I have thought it desirable to treat them in a separate paper as forming the nearest allies to *Platypi* which we as yet know.

Besides the Japanese species there is another from India, of which a male exists in the British Museum collection, and a female in Chapuis' collection in the Brussels Museum. The latter was received after the publication of his *Monographie*, and was labelled by him, "Platypide, gen. nov." I have, therefore, his authority as to the probable relationship of these forms with the *Platypini*; but the definition of the latter subfamily cannot possibly be extended so as to include them. They must, therefore, form a distinct subfamily of the *Scolytidæ*. In 1891, C. Schaufuss described a form from Madagascar under the name *Scolyto-platypus permirus*, which he considered as a true Platypid. In this paper, when first written, I accepted his view, as borne out by the generic characters, and compared the species with my Japanese forms, as their nearest ally among *Platypini*. Since then Herr Schaufuss has very generously entrusted to me for examination one of his two examples of this insect. I find it most closely allied

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\* Ann. Ent. Belg., xxiv. 2, p. 58, pl. v.

to the Japanese species, and examining it in the light of those insects, I note that in two essential points—the number of joints in the antennal funiculus, and the length of the first tarsal joint—his description is erroneous. In these points his insect does not correspond with the *Platypi*, and it must be grouped with the Japanese forms as distinct. But the sight of this insect has increased my difficulties with regard to generic classification. The several species, though most distinct in male characters, show little signs of difference among the females; and *S. permirus* appears to be intermediate between the two genera I had constructed. As I cannot dissect the type, which is somewhat mutilated, and have not seen the male, I think it better to unite the species under the general name of *Scolyto-platypus*, while indicating the genera I had founded on the Japanese species, as being possibly distinct from *S. permirus*, when it shall have been further examined. This makes it, unfortunately, necessary to adopt Schaufuss' name for the subfamily, a name which begs the whole question of their affinities. If my genera remain good, it would be better to change the family name to *Tæniocerini*.

The insects do not present any one striking feature, such as the upturned abdomen in *Scolytus*, or the elongate first tarsal joint of *Platypi*, and must be recognised by a combination of characters.

#### Subfamilia SCOLYTO-PLATYPINI.

Caput exsertum. Oculi oblongi, antice integerrimi. Antennæ inter basim mandibularum et angulum oculorum inferiorem insertæ, longitudine variantes, funiculo sex-articulato, clava magna, solida, compressa, imbricata, absque suturis, spongiosa. Prothorax subquadratus, haud asperatus, lateraliter sinuatus vel emarginatus, angulis posticis distinctis, lateribus pro receptione pedum anteriorum excavatis, margine elevato a pronoto separatis. Elytra thoracis basi latiora, cylindrica, apice convexo, declivi, pygidium obtegente. Pedes antici validi, coxis magnis, quadratis, a processu prosterni quadrato late discretis, femoribus robustis, compressis, tibiis curvatis, versus apicem dilatatis, apice excavatis, et spinula valida instructis, extus scabrosis-tuberculatis. Pedes intermedi et postici compressi, femoribus oblongis, tibiis curvatis, post basin leviter dilatatis, extus subtiliter serratis, pro tarsorum receptione excavatis. Tarsi tibiis haud longiores, simplices, articulo primo singulis sequentibus vix longiore vel brevior. Metasternum

abdomine brevius, utrinque ante coxas pro receptione femorum posticorum excavatum. Abdomen segmentis longitudine subæqualibus.

MAS. Capite transverso, fronte valde deplanata et excavata; femoribus anticis tibiisque subtilioribus, his obsolete tuberculatis; elytris ad apicem spinulis vel tuberculis armatis.

FEM. Capite globoso; in pronoto medio poro magno; femoribus anticis et tibiis fortiter dilatatis, his valde scabrose porcatis.

Of robust cylindrical form, not elongate, and of moderate size. Head visible from above, large and globose in the females; in the males the whole front is depressed and excavate, and the gular region is flattened to afford a hollow for the reception of the antennæ, so that the head viewed from the side appears rostrate. Eyes oblong or oblong-oval, not very convex, narrower and flatter in the females, without a trace of anterior emargination. Antennæ with six-jointed funiculus, variable in length and shape in the males, in the females with very short straight scape and funiculus, the latter not geniculate, with the basal joint strongly capitate, mushroom-shaped and not cupulate, the rest very transverse. Club large, flat and solid, impressed with close circular or irregular foveæ, the narrow interstices between which give it a reticulate or honeycombed appearance; these large foveæ show no trace whatever of hair-follicles, but two irregular vittæ crossing the club, which perhaps take the place of the obliterated sutures, are covered with minute crowded pits, which, under high magnification (1-12th oil-imm. obj.), show papillæ projecting from them; the rest of the club is hairy, the hair-pits being situated on the borders between the foveæ, and it may be ciliated. Labrum\* connate, only distinct on buccal surface. Epistoma slightly produced in the males in front of antennæ, covering the greater part of the mandibles. These are larger and prominent in the females, but present no special characters. Maxilla with a strongly chitinised cardo, its mala quadrate, with the outer apical angle shortly produced in the males, and hairy; inner edge straight in that sex, dilated at base and sinuate in females, its apex short, rounded, and closely set with fine falcate setiform spines, the rest of edge with a row of similar nearly straight spines. Maxillary palpi short, triarticulate, with a well-marked palpiger simulating a fourth joint, joints cylindrical, decreasing in width, first oblique, slightly transverse, second very short, third longer than broad, with obscure longitudinal striation.

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\* My description of the mouth-parts is based on those of the Japanese species alone.

Basilar piece of head coriaceous, fused with submentum, the limits of which are not discernible. Mentum attached to the base of a short triangular or transverse peduncle,\* trapezoidal in the male, and twice as long as broad; narrow in the female, dilated at base, then constricted, and becoming wider up to the truncate apex, which bears the three-jointed labial palpi, their joints cylindrical, decreasing in width, first longer than broad, hairy on outer half, second transverse, hairy, third as long as broad. Ligula tongue-shaped, as wide as mentum at base, inserted behind its middle, and just reaching its apex, quite devoid of the usual hairs. Prothorax subquadrate or transverse, not declivous anteriorly, and smooth, in the female, with a conspicuous circular or oval pore (at the junction of the anterior and middle third), the opening of which is usually blocked; its lateral borders emarginate for the posterior half, so that the basal angles are prominent, the emargination sharply bordered, corresponding to a lateral depression to receive the anterior legs. The anterior border of the prothorax presents in the males a fine trace of a median notch, as seen more clearly in *Scolytus*, and is oblique, so that the prosternum is short; before the anterior coxæ in the males is an excavation varying from a deep well-defined pit to a faint impression, probably for receiving part of the antenna, and a ridge which limits its lower border separates the flanks in front from the ventral surface. Anterior cotyloid cavities widely separated by a quadrate prosternum, the hind margin of which is prominent; posteriorly they appear to reach the prosternal border, but the true cavity is situated away from the posterior border, and has behind it an excavation to receive part of the dilated coxæ. Mesothorax short, transverse, narrower than upper part of episterna, which separate the lower part of the elytra from the prothorax, and extend back to meet the metasternum and form the outer border of the middle cotyloid cavities, cutting off the transverse epimera, which also meet the metasternum, being wider than the episterna of the latter. Mesonotum short, not carinate. Metathorax not elongate, grooved for anterior femora, its episterna rather narrow, subparallel. Abdomen with first two segments equal, sometimes slightly longer than third and fourth; fifth shorter than the two preceding ones, its hind margin

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\* By the term *mental peduncle*, I denote a short triangular piece usually visible at the base of the Scolytid mentum, and serving for its attachment; sometimes, as in this group, it appears to be segmented off; sometimes, as in *Tomicus sexdentatus*, it is distinct, but continuous with the rest of the mentum. It is not homologous with the submentum, as defined by Lacordaire, for both often coexist in one species. It appears, hitherto, to have escaped description, even by Eichhoff.

angulately flexed, so that the anal opening is dorsal and not terminal. Anterior coxæ remote, large, quadrate and flattened, in the females produced externally into a short lobe over base of femora; trochanters applied to whole base of femora, which are short, stout and compressed, with the lower internal border lobed at apex; the lobe small in the male, very large in the female, and covering the base of the tibia, so that the femora appear as broad as long when seen on their inner aspect. Anterior tibiæ curved, dilated gradually in male, strongly in female, their outer border spined to near apex, then strongly excavate, the excavation limited below by an outwardly directed spine; in the female scabrous externally with transverse rows of coarse tuberculation, which are nearly obsolete in the male. Middle coxæ rounded, remote, posterior, transverse, pointed, nearly contiguous; middle and posterior femora oblong, tibiæ curved, slightly dilated, flattened and grooved for tarsi, with the outer edge crenate with fine teeth. Tarsi not longer than tibiæ; first joint at most less than twice as long as second, which is equal to or slightly shorter than third, fourth very small, hardly discernible, fifth elongate; all joints simple, the first three with slight vertical flattening.

SOLYTO-PLATYPUS, *Schauf. ii.*

Schauf., Tidjs. Ent. xxxiv., p. 31.

The species may be distinguished thus:—

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|--------------------------------------------------------------------------------|------------------------------------|
| 1. Thorax with base sinuate, but not produced in middle ( <i>Spongocerus</i> ) | 2                                  |
| Thorax with base evidently produced in middle .. .. .                          | 4                                  |
| 2. Elytra with feeble striæ before apex .. .. .                                | <i>S. tycon.</i>                   |
| Elytra not striate before apex .. .. .                                         | 3                                  |
| 3. Elytra piceous .. .. .                                                      | <i>S. daimio.</i>                  |
| Elytra testaceous .. .. .                                                      | <i>S. siomio.</i>                  |
| 4. Elytra not striate before apex. ( <i>Scolyto-platypus</i> , s. str.)        | <i>S. permirus.</i>                |
| Elytra strongly striate before apex ( <i>Tæniocerus</i> )                      | <i>S. mikado</i> & <i>S. raja.</i> |

(*Spongocerus*, sub-gen. nov.).

Pars basilaris capitis margine antico in maribus subrecto, concavo in feminis; mentum pedunculo in maribus brevissimo, transverso, in feminis triangulari insertum. Prothorax quadratus, angulis posticis distinctis, haud productis, basi fere transversa, in medio non producta. Tarsi tibiis breviores, articulis tribus basalibus compressis, subtriangularibus.

MAS. Antennis dimidio corporis brevioribus, clava acuminata, in margine interno pilis longis ciliata.

FEM. Antennis funiculo per-brevi, clava ovali, nonnunquam acuminata.

Antennæ short in both sexes, scape strongly clubbed in the males, funiculus short but variable in structure, in one form being in direct line with the scape, with the first joint clubbed as in the females, in the other being flexible, with the first joint produced internally so as to be transversely subcylindrical; club oval, acuminate, ciliated on its inner border and apex with a fringe of long hairs. In the females the antenna is of the type already described, with the first joint of the funiculus clubbed; the club is oval, and acuminate in the form where the male funiculus is flexible. Anterior border of the basilar piece of the head straight in the males, the mental peduncle narrow, transverse, with a median process for its attachment to the head; in the females the mentum is about  $2\frac{1}{4}$  times longer than broad, narrow at base, and dilated towards apex, with the sides slightly concave. Prothorax subquadrate, base slightly bisinuate, not produced in middle, the posterior angles sharp, but not produced, lateral emarginations shallow, their anterior angles indistinct, so that the sides appear sinuate. Elytra cylindrical, scarcely visibly striate or non-striate, except at apical declivity, where the striæ are distinct; interstices of declivity finely tuberculate in the male, or carinate at base. The anterior legs are somewhat slender in the males, and the inferior junction of trochanter and femur is not angulate; very robust in the females, with the inferior junction forming a distinct angle. Tarsi distinctly shorter than tibiæ, with 2nd and 3rd joints vertically flattened and triangular, 1st less distinctly so; 1st joint of middle and posterior pairs shorter than 2nd.

*Scolyto-platypus tycon*, n. sp.

Oblongus, cylindricus, sat nitidus, parcessime pubescens, colore variabili, capite fusco-nigro, prothorace ferrugineo, nonnunquam antice fusco-nigro vel omnino infuscato, elytris ferrugineis, striga media plus minusve infuscata, vel nigris, antennis pedibusque ferrugineis; prothorace transverso, lateribus sinuatis, antice rotundatis, subtilissime reticulato, punctato; elytris subtiliter striatis, interstitiis multi-punctatis; declivitate striis nonnihil profundioribus, interstitiis rugosis, 1mo et 3io tuberculatis. Long. 3·5—4 mm.

MAS. Fronte excavata, pilis longis fulvis circumdata; elytrorum striis magis distinctis, stria suturali impressa.

*Hab.* Japan, Nikko and Kiga.

Oblong, cylindrical, somewhat flattened above. Head black, in males excavate up to eyes, fundus finely reticulate, and distinctly punctured behind, margin of reticulation ciliate with long inwardly curved yellowish hairs, vertex strongly punctured; in females



convex, impressed over mouth, front slightly flattened, with a fine median impressed line, and somewhat close punctuation, mouth fringed with hair, and front with short dense pubescence. Antennæ with scape and funiculus nearly similar in both sexes, the former more strongly clubbed at apex in male; club in male acuminate, with a fringe of about 14 long serrate cilia on inner side and apex, in female exactly oval, shortly hairy. Prothorax rather broader than long, more distinctly so in the male which has the anterior border emarginate, its base feebly bisinuate, basal angles nearly rectangular, sides subsinuate to near apex, with anterior angle of emargination inconspicuous, thence strongly rounded; its surface variable in colour, entirely ferruginous, or with an anterior black patch, which may invade the whole dorsum, finely reticulate with short sparse pubescence and a fine median raised line, limited in front in the females by dorsal pore, distinctly punctured in male, the punctures close on anterior third at sides of median line, in female with finer sparse punctuation. Elytra wider than thorax at base, and twice as long, basal angles rectangular, rounded, sides feebly convex to near apex, then strongly rounded at apical flexure, apex obtusely rounded; surface convex, slightly flattened in middle, somewhat shining, ferruginous, or with sides and suture blackish, or entirely black, irregularly punctured with fine striate impressions, the punctures of which are barely distinguishable from those of the interstices; in the male the striæ are deeper, especially the sutural stria, and the interstices are feebly convex; apical declivity rounded, shortly pubescent, striate, its interstices subconvex, with close rugose punctures, 1st with seven or eight, 3rd with five or six small tubercles, the other segments with traces of tuberculation at the base of the declivity. Tarsal joints 2—3 strongly dilated. Under side punctured and hairy; abdominal segments 1 and 2 longer than 3 and 4. Lateral fovea of thorax indistinct in male.

The male prosternum does not show the remarkable modification of its anterior edge seen in the next two species, and in *S. mikado*.

*Scolyto-platypus daimio*, n. sp.

Convexus, cylindricus, nitidus, fere glaber, nigro-piceus, elytris plaga basali obscure dilutiore; prothorace parum latiore quam longiore, angulis posticis acutis, lateribus sinuatis, subtilissime reticulato et punctato; elytris ad apicem fortiter declivibus, ante declivitatem irregulariter punctatis, striis omnino nullis, declivitate striata, interstitiis 1mo et 3io tuberculatis. Long. 3.5 mm.

MAS. Fronte impressa pilis longis crispatis circumdata, antennarum funiculo flexuoso, articulo primo transverso, subcylindrico, extus producto, ceteris transversis, clava subtriangulari acuminata, ciliata; prothorace antice in medio distincte impresso, interstitiis elytrorum in declivitate versura carinatis.

FEM. Antennarum clava ovali, subacuminata; interstitiis in versura non carinatis.

*Hab.* Japan, Nikko.

Cylindrical, convex, much smaller and narrower than *S. tycon*, shining, piceous black; elytra obscurely marked at base with two testaceous streaks. Head in male excised deeply, fundus finely reticulate, set over eyes with two dense fasciculi of long piceous hairs, which are curled into fundus, vertex punctured; in female, convex, punctured, finely pubescent. Antennæ of male short, scape curved, clubbed, funiculus shorter than scape, flexible, its 1st joint produced externally so as to be subcylindrical, but pointed at apex, and transverse, 2nd joint situated on distal side of 1st before apex, transverse, conical, succeeding joints transverse, little increasing in size, 4th and 6th slightly produced internally to bear a long seta; club subtriangular, acuminate, its outer edge feebly convex, its inner edge convex at base, forming a prominent rounded angle inside attachment of funiculus, and thence subconcave to apex; extremity of the scape, the funiculus and club, hairy, the hairs of the latter of various lengths, and there is a fringe of about 16 long hairs on the inner edge and apex, as in *S. tycon*. Scape in the female less strongly clubbed; the 1st joint of the funiculus of the usual mushroom shape, and the rest as in the male; club oval, feebly acuminate and hairy, but without the long cilia and processes. Prothorax rather broader than long, its base slightly bisinuate, its basal angles acute; sides bisinuate, the anterior angles of the emargination being feebly marked, and broadly rounded at the apex in the female, more narrowly in the male, where there is a well-marked emargination. Surface finely reticulate, punctured and feebly pubescent; in the male there is a distinct longitudinal impression towards the anterior end of the median line, and two less marked ones on either side behind it. Elytra cylindrical, convex, double as long as thorax, and much wider at base, basal angles rectangular, sides parallel to near apex, then angled, the angulation being marked with a small tooth, and proceeding nearly straight to apex, which is obtuse; surface piceous brown, obscurely testaceous at shoulders, without trace of striæ, with rather fine irregular punctures, some of which belong to the obliterated striæ, but are not

distinguishable from the rest, except with a strong light; apex rather abruptly declivous, subconvex, striate, the striæ after the first two being obliterated below the flexure, the interstices in the male shortly carinate at the flexure, the alternate ones more strongly, 7th toothed, forming lateral tooth of elytron; declivity with six or seven tubercles on 1st, three or four on 2nd interstice in both sexes. Under side piceous, with mesosternum lighter, pubescent and punctured, strongly on prosternum and abdominal segments, these nearly equal in length. Legs and antennæ testaceous brown, club of latter darker. Middle and posterior tibiæ with outer border angulate in middle; tarsal joints not strongly compressed.

The antennal hairs of the male are all either serrate for their whole length or thickened at their tips, particularly those of the inner angle and base of the club, which end in variously formed flattened processes, reminding one of golf-clubs or antennæ of butterflies; these processes are covered with fine aciculations, and the long cilia display the same thickening, but less conspicuously. Serration is visible on the hairs of *S. tycon* ♂, but there is no clubbing. The antenna, when extended, either assumes a position with the club vertical, and its inner edge below, or is turned completely round so that the lower surface of the club becomes uppermost. I do not know which position is assumed in life, or whether the torsion takes place at the junction of the scape with the head, or of the funiculus with the scape, as I have not been able to separate the antenna from the head of a unique specimen; but I think the latter is correct. I have described the external and internal borders in accordance with their morphological position, not that assumed by the inverted antenna.

At the anterior angles of the prosternal process in the male two small colourless chitinous processes project forwards and outwards; they are below the level of the prosternum, but are attached to the true anterior ventral border of the prothorax, which is here split, or really infolded so as to form a small flat recess lying internally to the prosternal process. This recess is probably separated from the inside of the thorax by a thin membrane, but it is impossible to see it. This peculiar structure will be made more intelligible by a reference to the description of the male prothorax in *S. mikado*. The lateral foveæ are larger and more distinct than in *S. tycon*.

*Scolyto-platypus siomio*, n. sp.

Antecedenti simillimus et forsan varietas. Differt elytris ferrugineo-testaceis, pro portione brevioribus, tuberculis in declivitate fere obsoletis. Long. 3 mm.

MAS. Prothorace antice in medio obsolete impresso; interstitiis elytrorum in versura elevatis, spinosis, vix carinatis.

*Hab.* Japan, Nikko, Sendai.

Differing from *S. daimio* in very slight characters, which in the series collected appear to be constant. Somewhat shorter, and comparatively broad. Prothorax in the male with anterior depression feeble and nearly obsolete. Elytra ferrugineo-testaceous, darker along suture, relatively shorter than in *S. daimio*, with sides less parallel, and apex more vertically declivous, their basal border hardly visibly raised, less distinct than in *S. daimio*; declivity with striæ finer, and tubercles, except last tubercle of sutural interstice, nearly obsolete; carinæ in the male less prominent. Under side similar, but lighter.

As examples of the two species were caught at the same time and place, it is possible that this is merely a depauperized form of *S. daimio*; but the evident difference in shape is against that supposition, and they cannot be geographical varieties. The question of its distinctness must be settled by further specimens.

There is no non-comparative character, except colour, by which to separate the two species. The females of either can be separated from those of *S. tycon* by the complete absence of all striæ on the disc of the elytra. In *S. siomio* a sutural row of punctures is evident, chiefly owing to their darker colour, and it cannot be made out on the infusate elytra of *S. daimio*.

(*Scolyto-platypus*, s. str.).

*Scolyto-platypus permirus*, Schauf. ii.

Schau. ii., Tijds. Ent. xxxiv., p. 31.

*Hab.* Madagascar.

The female is most like that of *S. daimio* among the Japanese species, but is much shorter and broader; its colour is deep black, and it is duller; the prothorax is nearly glabrous, and is evidently produced in the middle as in the following species. Its lateral angles terminate with a small sharp tooth, but are not produced as a whole. The scutellum is much larger than in any Japanese species. The legs are piceous, and the hinder tibiæ strongly ciliate

along the tarsal groove; the posterior tarsi (the only ones I have been able to examine) are less slender than in the following species, with the 1st joint a little longer than the 2nd, which is about equal to the 3rd, and not shorter, as in the subgenus *Tæniocerus*. Schaufuss is in error in stating that the 1st joint is twice as long as the 2nd, and that the antennal funiculus is 4-jointed. It is exceedingly short, and the joints are almost impossible to count unless it is mounted in balsam. I have made out certainly five, and I believe six, the number in all the other species. The club is not acuminate; and Herr Schaufuss informs me that there is no marked difference in the male antennæ.

(*Tæniocerus*, subgen. nov.).

Pars basilaris capitis in utroque sexu margine concavo; mentum pedunculo triangulari insertum, in feminis ter longius quam latius. Prothorax angulis posticis productis, basi valde bisinuata, in medio producta. Tarsi longi, tibiis fere adæquantes, articulis angustis; articulo 3io 2do duplo fere longiore.

MAS. Antennis dimidio corporis longioribus, scapo elongato, recto, clavato, funiculo flexili, articulis duobus primis elongatis, ceteris transversis, clava longissima, valde acuminata, apice piloso.

FEM. Antennis brevibus, funiculo recto, articulo 1mo capitato, 2—6 transversis, latitudine vix crescentibus, clava longitudine scapo funiculoque conjunctim æquali, ovali, subacuminata.

Antennæ in the male very long, reaching nearly to the middle of the elytra; scape straight, except for articular hook, strongly clubbed at apex; funiculus as long as scape, flexed outwardly on it, 1st joint long, nearly cylindrical, being strongly produced externally, its inner border hairy, 2nd joint inserted within external point of 1st on its anterior side, elongate, cylindrical, joints 3—6 short, transverse, their outer margins closely applied, their inner separated to allow of flexion; club more than three times as long as wide, narrow and pointed, attached at its outer basal angle, outer edge concave, inner convex at base, thence straight to apex, hairy. Antenna of female with scape short, curved, little clubbed; funiculus very short, scarcely thickened; club oval, acuminate, hairy. Elytra strongly striate.

*Scolyto-platypus mikado*, n. sp.

Oblongus, cylindricus, obscurus, glaber, niger vel piceus, elytris nonnunquam apice dilutioribus, pedibus antennisque rufescentibus; prothorace vix latiore quam longiore, angulis posticis productis, acutis, lateribus ad medium emarginatis, inde subrectis, et gradatim versus apicem rotundatis; disco subtiliter reticulato, punctis

magnis, haud profundis, frequentis notato, linea media impressa obsoleta; elytris prothorace sesqui longioribus, versus apicem declivibus, striis subsulcatis, irregulariter punctatis, interstitiis subconvexis, reticulatis, multipunctatis; declivitate subconvexa, interstitiis dense ac rugulose punctatis, 1mo cum 3io et 7mo, 4to cum 6to conjunctis. Long. 3·3—4 mm.

MAS. Vertice capitis subtilissime pubescente, elytrorum interstitiis 1, 3, 5, 7 non declivibus, carinatis, nitidis, in spinulas liberas circum declivitatem productis; spinulis et declivitate glabris.

FEM. Vertice glabro, interstitiis elytrorum similibus, 2do in declivitate parum depresso. Long. 3·3—4 mm.

*Hab.* Japan, Nikko, Oyama, Sapporo, and Oyayama.

Head in both sexes dull, with close reticulation; front in male impressed to eyes, concave, vertex, which forms an angle with front, and is hidden when head is extended, more strongly punctured, feebly pubescent; front in female convex, glabrous, except for a fringe over mouth, impressed above mouth, and with a fine central suture. Antennal hairs of male not very long, except at tip of club, simple; pores of club small, not close. Thorax with base strongly bisinuate, produced in middle, its basal angles produced, and pointing slightly forwards; anterior angles of emargination less prominent than in next species, and lateral border gradually rounded anteriorly and not angulate, apical emargination in male inconspicuous, surface quite dull, with a fine median impressed line, not extending in front of pore in female, closely covered with shallow, somewhat variolose punctures, which are smaller in the female. Elytra with base slightly bisinuate, its margin raised and acute, humeral prominence small, obtuse; striæ impressed, with irregular coalesced punctures, the first two obsolete at base, interstices finely reticulate, somewhat shining at base, with fine irregular punctures, which become stronger and more rugose towards apex; alternate interstices carinate in male from before middle of elytra the carinæ smooth on the summit throughout, ending in short free spines with but the barest trace of any hairs, towards the apex the 2nd interstice is faintly impressed and narrowed; interstices in female similar throughout.

Under side black, with apex of elytra lighter, sparsely pubescent, punctured, coarsely on base of prosternum and abdomen; metasternum flattened in front with a fine longitudinal carina. Male with a long wisp of hair on anterior coxæ; abdomen with apical segments flatter than in female, last segment hairy. Anterior legs of male somewhat stout, junction of trochanter and femur angulated below, femoral lamella distinct. Prothoracic foveæ of male

arge, deep, reniform. Prothoracic pore in female conspicuously filled with a tuft of yellow material.

This species, one of the most remarkable among the *Scolytidæ*, presents notable features in the development of the male antennæ and prothorax. The former have been described; the first joint of the funiculus is apparently elongated in its long axis, but comparison of it with the antennæ of *S. daimio* and *tycon* shows that it is prolonged outwardly, carrying the rest of the funiculus with it. When the antennæ are fully extended, the scape points directly forwards, and the funiculus is curved outwards; when they are flexed, the funiculus is flexed outwards on the scape, inwards on the club, curving round its convex base so that, if the scape remains fixed, it and the club will point forwards, the funiculus backwards; a movement of the scape will then bring the antenna under the head, in the hollow of which it lies. The prothoracic foveæ in the males of these insects are correlated in size with the antennæ, but I have not been able to discover how they are used.

In addition to the ridge which forms the lower boundary of these foveæ, and separates the ventral surface of the prothorax from the flanks, the anterior edge of the prothorax is flexed upwards in the male of this species, forming a narrow border, which is bounded by a well-marked ridge passing in front of the anterior coxæ and prosternal process; this flexion is probably to increase the cavity for the antennæ formed by the recessed outer surface. The ridge bears two prominent tubercles at the front of the prosternum, which is narrowed, and before them on the flexed margin are two minute inwardly curved chitinous hooks, conspicuous because nearly colourless. These hooks are close together, and not apart, like the processes in *S. daimio*. Between these structures the recess is deep, and contains a circular hole, visible from in front, and only separated by a thin transparent membrane from the cavity of the prothorax. I can form no reasonable conjecture as to the use of this extraordinary arrangement, which is not present in the females, but exists in a modified form in the males of *S. daimio* and *siomio*; the dorsal pore of the females is equally unintelligible.

*Scolyto-platypus raja*, n. sp.

Antecedenti paullo minor, prothorace brevior, punctis minoribus notato, interstitiis elytrorum postice subtilissime asperatis, et his notis utriusque sexus distinctus. Long. 3 mm.

MAS. Rufo-brunneus (? immaturus); capitis vertice pilis longis flavis prorsus directis ciliato; elytris brevioribus, interstitiis omnibus in medio elytrorum ante declivitatem rugosis, alternis minus carinatis, spinulis pilis flavis circumdatis; declivitate minus obliqua, subtilissime asperata, et pube brevissima flava vestita.

FEM. Nigra, elytrorum apice dilutiore; prothoracis lateribus inter emarginationem et apicem obtuse angulatis; elytrorum striis subtilioribus, vix sulcatis, interstitiis fere planis, punctis minoribus notatis, in declivitate scabrosis, impunctatis, interstitio 3io distincte elevato, 2do impresso.

*Hab.* India (Himalaya).

Male in the British Museum. Female in the Brussels Museum (Chapuis' collection).

Male readily distinguishable from *S. mikado* by the pubescence. The vertex has a dense fringe of hairs in the middle, which project forwards; the elytral spines are each set in and nearly hidden by a small brush of yellow hairs; and the declivity has a very fine pile, which is evident when viewed sideways. The interstices of the elytra are smooth for the basal third, after which they become rough and dull, whereas the carinate interstices of *S. mikado*, ♂, are shining as far as the apical spines. The female is harder to distinguish; the anterior angles of the thoracic emargination are prominent, before them the sides are straight and slightly narrowed towards the apex, thence very obtusely angulated to form the apical curve. The elytral striæ are narrow, and present less sign of coalesced punctures; the interstices are hardly convex, and their punctures are fine, and not distinct variolose depressions; the interstices on the apical declivity are covered with fine transverse rugosities, and are quite impunctate, the 3rd, besides being elevated, is curved towards the suture as in the male, but this character cannot be used for separation, except comparatively, as it occurs less distinctly in *S. mikado*.

I have not thought it desirable to examine the under sides of these unique specimens, the male of which is in bad condition; as far as can be seen, they present no structural differences from the last species. I believe I am justified in referring them to the same species.



It is now necessary to discuss the relationship of these insects, which, in antennal development, the structure of the fore legs, the presence of the thoracic foveæ and prosternal modification in the male, and the dorsal pore in the female, present such remarkable structural features. They appear to me to stand midway between the wood-boring *Tomicini*, such as *Trypodendron* and *Xyleborus*, and the *Platypini*. They agree with the latter in possessing an exposed head, eyes without emargination (they are not so elongate in any Platypid, and are usually more convex), the quadrate and laterally emarginate prothorax, and the strongly-developed anterior tibiæ. The elytral armature of the males is like that of the *Platypini* (females, Chap.), and the dorsal pore may find its homologues in the paired pores of the *Platypi discopori* (males, Chap.). But though they are apparently on the road to *Platypus* development, they have not reached the goal. The antennal funiculus is 6-jointed, whereas it is always 4-jointed in the *Platypini*, the flattened scape of which is not like the curved clubbed scape of these insects. The tarsi are shorter than in any *Platypi*; the 1st joint, if a little longer than the 2nd in *S. permirus*, is certainly not elongate; the hinder legs resemble those of a *Trypodendron*, the mesonotum is not carinate, and the metathorax short. Moreover, the mouth-parts are not modified to the *Platypus* type, and in the females are not readily distinguishable from those of *Xyleborus dispar*, ♀, differing only in the hairless ligula and the absence of a distinct submentum; the malar armature, if Eichhoff's generalisation is right, shows that they are wood-borers. The prothorax differs strongly from the cowed and asperate prothorax of the *Tomicini*, without attaining the elongation of that of *Platypi*; the lateral emargination and border are of little importance, and indicate merely an arrangement for the reception of the large fore legs. This feature occurs to some extent in many *Scolytidæ*, *Coptonotus*, *Camptocerus*, *Hexacolus*, *Xyloctonus*, &c. An excavation for the fore legs which is not bordered is quite common in *Tomicini*, with which the body of these insects agrees behind the prothorax. The development of the fore legs is anticipated to some extent in *Tomicini*. The femoral lamella is feebly developed in some wood-borers (*Amphicranus*, *Trypodendron*); the scabrous tibiæ find their

counterpart in *Pterocyclon*, and even the triangular tarsal joints of *S. tycon* are repeated in *Platydictylus*.

The 6-jointed funiculus is not found in any known wood-boring Tomioid, though it occurs in others; but this part is very variable, and always a reduction from a 7-jointed structure. The solid *Platypus*-like club is not rare in *Tomici*, e. g., *Trypodendron*; its reticulation may serve as a guide to their relationship, but at present I know nothing quite like it. In *S. mikado*, ♂, it is less evident, owing to the smaller size of the pits, a further reduction in which would bring the antennal surface to a condition resembling that of *Crossotarsus wallacei*, the largest *Platypid*.

I cannot indicate more than a general relationship with the *Tomicini*. The smallest species, *S. siomio*, ♀, has, if we disregard the thorax, a certain likeness to *Trypodendron*.

Mr. Lewis informs me that *S. mikado*, which appears to be the commonest and most widely distributed of the Japanese species, as well as the most striking, was usually taken in May on the twigs of plum-bushes in blossom, from which it was beaten.

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#### EXPLANATION OF PLATE XIV.

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FIG. 1. *Scolyto-platypus tycon*, ♂.

a. Antenna.

2. *S. tycon*, ♀.

a. Antenna; the dark bands indicate the situation of the smaller pores.

b. Part of antennal surface, × 400.

3. *S. daimio*, ♂.

a. Antenna.

b. Antennal hairs.

4. *S. mikado*, ♂.

a. Side view.

b. Under side of prothorax.

c. Antenna.

d. Anterior leg, from behind.

5. *S. mikado*, ♀.

a. Anterior leg, from behind.

